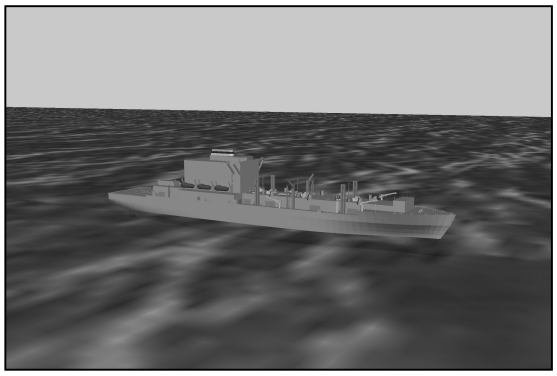
DRY CARGO/AMMUNITION SHIP (T-AKE 1)



The Dry Cargo/Ammunition Ship program provides a new multi-product ship class to resupply Navy combat forces at sea. The ships will replace the existing auxiliary replenishment (AFS-Stores and AE-Explosives) class ships and will provide ammunition, spare parts, and provisions (dry, refrigerated, and frozen). The primary mission of T-AKE 1 is to provide logistics lift from friendly ports or from specially equipped merchant ships to the battle group replenishment station ships. In its secondary mission, the T-AKE 1 will be capable of remaining on station with the battle group to fill the station ship role in conjunction with a T-AO (Oiler)-class ship.

BACKGROUND INFORMATION

By 2007, the entire Navy's current inventory of eight-ship AFS 1 class and eight-ship AE class will have reached the end of their 35-year design life. This 12-ship T-AKE 1-class is intended to replace these ships. The acquisition strategy prescribed a two-phased program. Phase I was to identify innovative concepts for efficiencies with on-board material handling and cargo flow and to propose life cycle cost savings through reduced manning and improved ship design. That phase has been completed. A contract for Phase II, the detail design and construction of the ships, was awarded in October 2001.

TEST & EVALUATION ACTIVITY

During FY01, DOT&E continued to participate actively in the program's working integrated product teams and approved a Test and Evaluation Master Plan (TEMP) to guide planning for a three-phase operational test, assessment, and evaluation strategy.

In FY00, the Navy and DOT&E had developed the T-AKE program Live Fire Test and Evaluation (LFT&E) strategy. During FY01, the details on implementing that strategy were developed by the Navy and DOT&E, culminating in the definition of a LFT&E test program, approval of the T-AKE LFT&E Management Plan in August 2001, and the granting of a waiver from full-up, system-level testing by USD(AT&L). This alternative plan uses limited component, subassembly and surrogate testing, coupled with modeling and simulation (M&S) to conduct an assessment of selected shot lines that will identify ship and crew vulnerabilities. An at-sea Total Ship Survivability Trial will be conducted to assess T-AKE Class damage control and recovery.

TEST & EVALUATION ASSESSMENT

A three-phase operational test, assessment, and evaluation strategy consists of two Operational Assessments (OAs) and an IOT&E for the lead ship of the class. The first OA, planned to commence in late FY02, will focus on the adequacy of planned cargo handling capabilities. Risks associated with cargo handling and flight operations for vertical replenishment will also be assessed. Because the ship will use Navy standard replenishment rigging, the risk of inadequate connected inter-ship replenishment capability is limited. Since the ship hull will be based on existing commercial designs, the risk of serious hull and propulsion deficiencies during routine operations is less than the risk associated with cargo handling at sea.

The initial OA will require accreditation of M&S by the Navy's OPTEVFOR. DOT&E continues to work with the Navy to ensure that the initial OA can provide assessment results that identify any design modifications, which are necessary from an operational perspective, and that support continuation of ship procurement.

The second OA will be conducted during the ship construction phase and will focus particularly on the performance of the ship and its components during scheduled testing, including acceptance trials by the Navy's Board of Inspection and Survey. The IOT&E will be conducted under realistic at-sea conditions, including replenishment of an aircraft carrier battle group.

An area, in which little information will be known, even after the completion of the T-AKE Class LFT&E Program, will be the resistance of vital equipment and structure to underwater explosive shock. While there will be an at-sea Total Ship Survivability Trial conducted to assess damage control and recoverability capabilities, there will be no ship shock trial because of concerns that many systems on the ship could be damaged beyond economical repair.

As the first ship built largely to commercial standards to undergo LFT&E, the management approach developed by the Navy and approved by DOT&E develops a test basis to assist in understanding the response of commercial grade structure and equipment to weapons effects. For the T-AKE 1 Class, the Navy has not established an operational requirement for shock hardening of vital mobility mission area equipment, or for other vital systems other than firefighting, emergency lighting, and communications systems.